

*Abstract of the Disclosure*

A monolithic shaper-scheduler is used for the efficient integration of scheduling and dual-leaky-bucket shaping in a single structure. By making the evolution of the timestamps of the backlogged flows independent of their shaping parameters, the performance drawbacks of prior-art shaping architectures are overcome. The monolithic shaper-scheduler tests each packet flow as being either “virtually compliant” or “virtually noncompliant” when a new packet arrives to the head of its queue. The test for “virtual compliance” is based on traffic profiles associated with the flows. The result of the test is used in conjunction with the timestamp and eligibility flag of each packet flow to efficiently schedule the transmission of packets.

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